Space Weather Forecast

Issued on Saturday, 29 October 2022 at 13:29 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Risk of G1/Minor Storms throughout.

Analysis of Space Weather Activity over past 24 hours
Solar Activity: Solar activity has been Low, with only low energy Common-class flares observed. There are six sunspot regions on the visible disc, of which two large regions in the northeast quadrant are the most significant. The large region close to the northeast limb has shown the greatest development, and presents the greatest risk of moderate flare activity. The largest region is approaching the centre of the visible disc, and is also developing slowly. The remaining regions appear either stable, or are fading. No Earth-directed CMEs (coronal mass ejections) have been observed.

Solar Wind / Geomagnetic Activity: The solar wind speeds have risen fitfully from slightly elevated to elevated speeds due to the influence of a fast solar wind from a coronal hole which started to influence the Earth on 28 October. Total magnetic field strength was mainly moderate but has gradually declined to weak values. The north-south component has varied moderately, but has been mainly negative. Geomagnetic activity started the period Quiet, but has been mainly Active since the second half of 28 October, with two G1/Minor Storm periods, one late on 28 October and one early on 29 October.

Energetic Particles / Solar Radiation: The count rate of energetic particles (High energy protons) remained at background with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary
Solar Activity: Solar activity is expected to be mainly Low, with a slight chance of isolated M-flares.

Solar Wind / Geomagnetic Activity: No Earth-directed CMEs are forecast. Earth is currently being affected by a fast solar wind from a coronal hole. A further coronal hole fast wind is then likely to connect with Earth later in the period. Generally elevated winds are expected but with a declining trend. Geomagnetic activity is forecast to be mainly Unsettled to Active, with a likelihood of G1/Minor Storms on 29 October, then mainly Quiet to Unsettled, with a declining risk of Active or G1/Minor Storms intervals through the remainder of the period.

Energetic Particles / Solar Radiation: The count rate of energetic particles (High energy protons) is forecast to persist at background with no solar radiation storms occurring.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	60	20	20	5
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	15	15	15	15
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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